

# Keeping Food out of the Landfill



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# Personal Background



**Chris Vogliano**

*Registered Dietitian  
Nutritionist*

## **Board Member/Advisory Panel**

Council on Future Practice

Second Century Liaison (VN DPG)

## **Consultant**

Unilever's Agent of Change – Sustainability Expert

## **Employee**

Arivale – Clinical Research Associate

## **Research Support**

Academy Foundation

## **Speaker's Bureau**

Vegetarian Nutrition DPG

Hunger and Environmental DPG



# Learning Objectives

- 1 Identify where food waste occurs along the food supply chain.
- 2 Understand the environmental, social, and economic implications of food waste.
- 3 Identify three ways to help reduce our individual food waste footprints



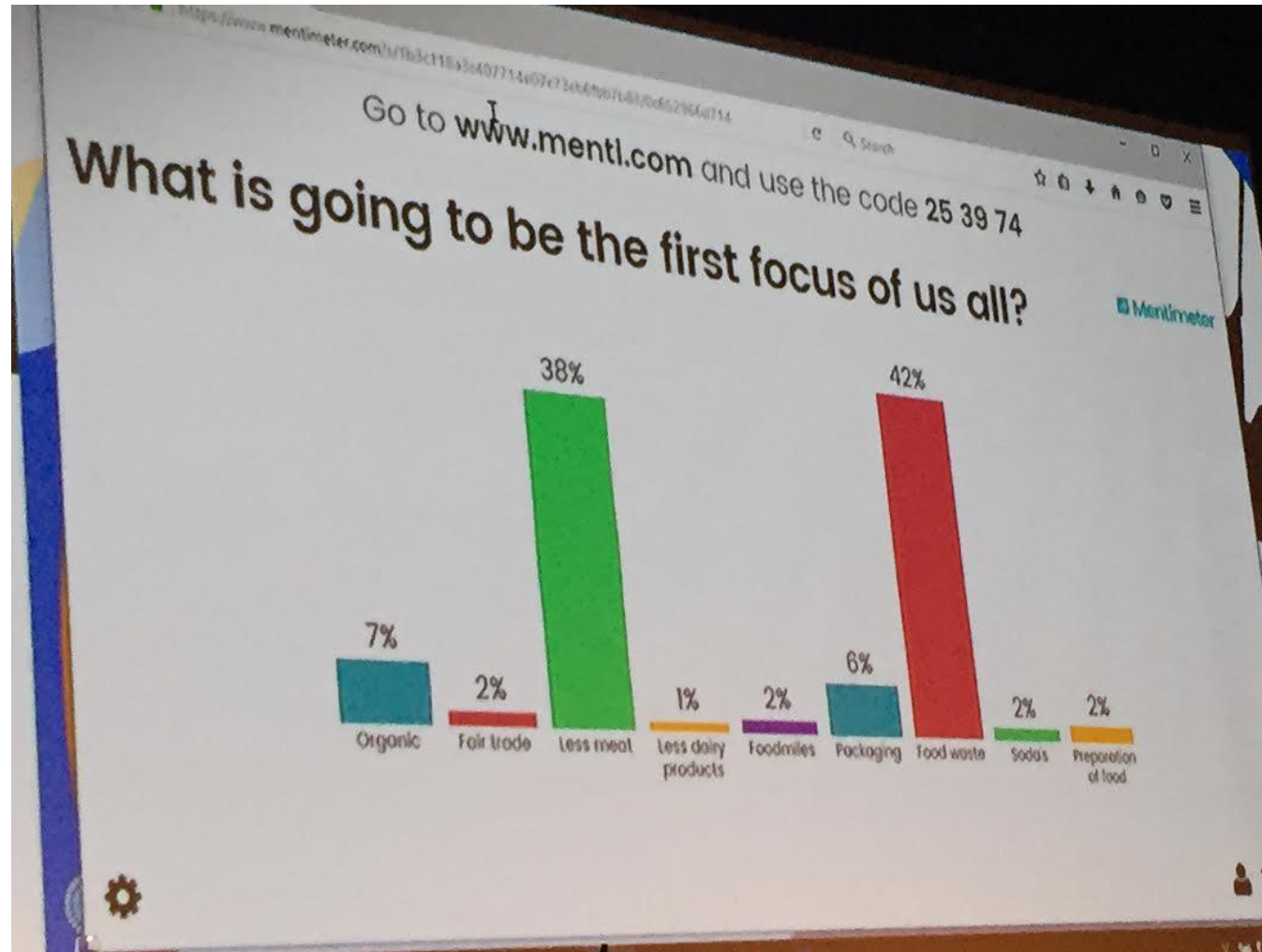
# Why should we care about food waste?

- Nearly 40% of all food we produce in the United States ends up in the Landfill <sup>1,2</sup>
  - That's enough to fill the Empire State Building 91 times each year.<sup>3</sup>
- The US spends \$218 billion on food that will ultimately end up in being wasted.<sup>4</sup>
- Food that we never eat accounts for 24% of total fresh water that was used in food production.



1. Gustavsson, J., Cederberg, C., Sonesson, U., Van Otterdijk, R., & Meybeck, A. (2011). Global food losses and food waste. *Food and Agriculture Organization of the United Nations, Rom.*
2. <https://www.usda.gov/oce/foodwaste/faqs.htm>
3. <http://facethefactsusa.org/facts/supersized-hunger-pangs-supersized-waste-infographic/>
4. Bloom, Jonathan. *American wasteland: How America throws away nearly half of its food (and what we can do about it)*. Da Capo Press, 2011.
5. Kummu, M., H. de Moel, M. Porkka, S. Siebert, O. Varis, and P.J. Ward. 2012. "Lost food, wasted resources: Global food supply chain losses and their impacts on freshwater, cropland, and fertiliser use." *Science of the Total Environment* 438: 477-489.

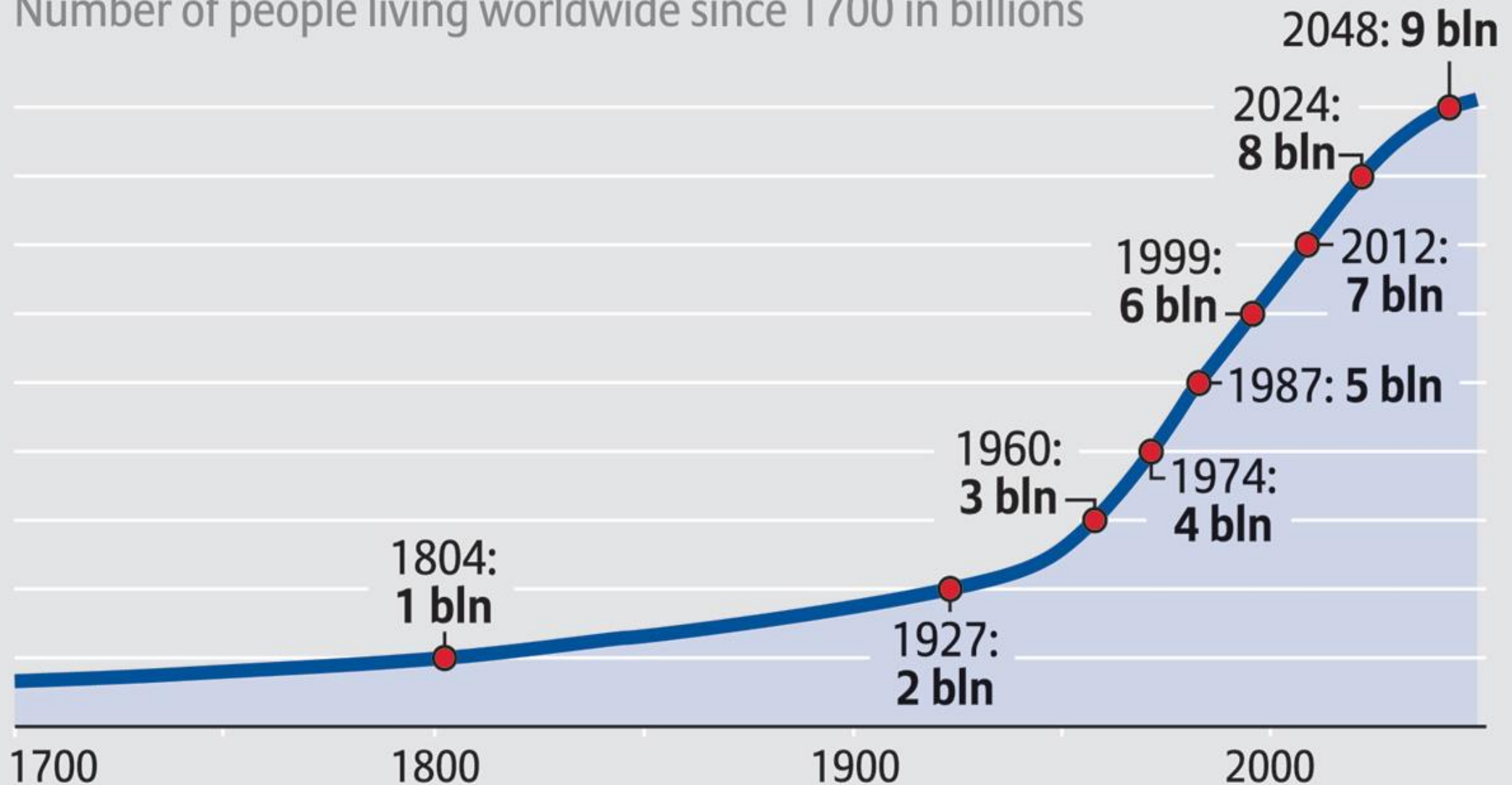
# Food Waste is Trending!



*International Congress of Dietetics, Spain 2016*

# POPULATION OF THE EARTH

Number of people living worldwide since 1700 in billions



Source: United Nations World Population Prospects, Deutsche Stiftung Weltbevölkerung

For further information please visit: [www.knowledge.allianz.com](http://www.knowledge.allianz.com)





The average American tosses **300 lbs**  
of food annually



# We live in a disposable culture

- An era of plenty
  - Contributes to our waste habits
- Most people would not willingly choose to cut down the Amazon Rainforest – yet it's happening daily to produce food that no one eats.
- Over 97% of food waste generated ends up in landfills.<sup>1,2</sup>



1. <https://depts.washington.edu/uwcphn/reports/SeattleFoodWasteReport.PDF>

2. <https://blog.epa.gov/oswerforum/2012/03/food-waste-reduction/>



# The Food Waste Iceberg

Bill at producer price:  
\$750 000 000 000

Bill at retail price:  
\$1000 000 000 000

what  
we see

Cleared Forests

GHG Emissions

Increase in Food Prices

Increased Water Scarcity

Eroded Land

Bill from nature:  
\$700 000 000 000

what  
we don't see

Loss of Wetlands

Loss of Biodiversity

Climate Change Damages



Food and Agriculture Organization  
of the United Nations

Where does the majority of food waste happen in America?

- A. Farms (Pests, 'Ugly' produce, etc.)
- B. Processing, packaging and transportation
- C. Retail (grocery stores and restaurants)
- D. At home (consumers)

# What is wasted food?

- Wasted food is defined as **food that is lost, discarded, or uneaten**
- Food Waste VS. Food Loss
  - Food waste = Mostly in developed countries
  - Food loss = Mostly in developing countries





# Where is food being wasted?

## FOOD WASTED BY WEIGHT - 63 MILLION TONS

Waste occurs throughout the supply chain, with nearly 85% occurring downstream at consumer-facing businesses and homes.



# The Story of Wasted Food

## FARMING

### REASON

- Low market prices
- Food Fads and Media
- High Labor Costs
- Expectation for Cosmetically Perfect Produce
- Fluctuation in Market Demands
- Environment (pests, weather, etc.)

F

### AMOUNT

**10 Million tons annually**

### COST

**\$15 Billion Annually**



# MANUFACTURING



## AMOUNT

**1 Million Tons**

M

## REASON

- This is the area where the least amount of food waste occurs
- Trimmings, mishandling, and extra product makes up this category
- Overproduction

## COST

**\$2 Billion Annually**

## REASON

- Strict consumer aesthetic demands
- Overstocking
- Moving food to slowly
- Large Portions (Obesity & Wasted Food)

## COST

**\$57 Billion Annually**

# RETAIL

R

## AMOUNT

**25 Million Tons**





## REASON

- Confusion of labelling
- Over purchasing at store
- Lack of composting (in most cities)
- Improper storage of fruits and vegetables



## AMOUNT

**27 Million Tons**

## COST

**\$144 Billion Annually**



**CONSUMERS**

**Sources:**  
ReFED Food Waste Report  
NRDC's Wasted Report





Impacts of Wasted Food



# Economic Impacts



## Globally

- We throw away the retail equivalent of \$1 trillion of food each year.<sup>1</sup>

## America

- Value of wasted food in 2010 was \$161 billion.<sup>2</sup>
- The amount of waste costs the average family of four as much as \$190 per month.<sup>1</sup>
- In 2008, the EPA estimated that food waste cost roughly \$1.3 billion to dispose of in landfills.<sup>2</sup>

1. <http://www.fao.org/docrep/018/i3347e/i3347e.pdf>
2. <https://www.usda.gov/oce/foodwaste/faqs.htm>
3. <https://www.epa.gov/sustainable-management-food>



# Social Impacts

- Over 1 billion people are not getting enough food for a healthy lifestyle
  - 1 in 7 Americans do not know where their next meal is coming from <sup>1</sup>
- Feeding America network and our partners diverted over 2 billion pounds of safe, edible food that might otherwise have gone to waste, to Americans facing hunger. <sup>2</sup>



Source – Feeding America Summary 2015

1. <http://www.feedingamerica.org/hunger-in-america/>

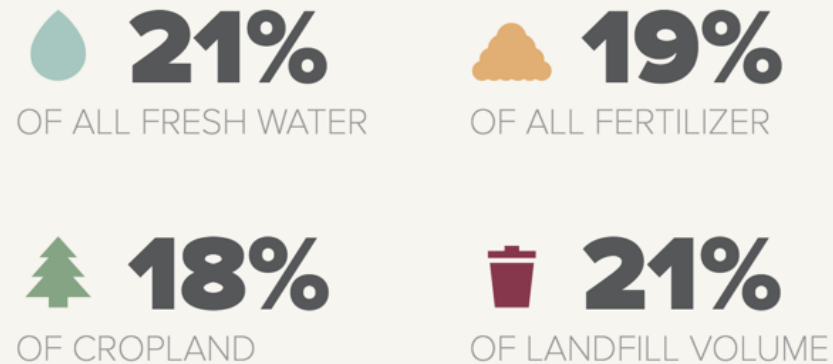
2. <http://www.feedingamerica.org/about-us/how-we-work/securing-meals/reducing-food-waste.html?referrer=https://www.google.com/>

# Environmental Impacts

- Wasted Food accounts for 6–10% of human-generated greenhouse gas emissions <sup>1</sup>
- Rotting food in landfills creates Methane gas – 25x more potent than CO<sub>2</sub> <sup>2</sup>
  - Less than 3% of food waste was recovered and recycled [composted] in 2010. <sup>2</sup>
  - Every ton of food wasted results in 3.8 tons of greenhouse gas emissions. <sup>3</sup>
- Wasted Food = Wasted Water



## FOOD WASTE CONSUMES:



1. <http://www.fao.org/food-loss-and-food-waste/en/>
2. <https://www.epa.gov/sustainable-management-food/sustainable-management-food-basics#what>
3. <http://www.ifr.ac.uk/waste/Reports/WRAP%20The%20Food%20We%20Waste.pdf>





# Issues: Anti-hunger agencies



- Not enough food, particularly nutritious food, is being donated to food banks
- Inadequate storage space – particularly for perishables - is the single most cited challenge
- The near-immediate perishability of certain donations and the fact that many donated foods are close to expiration results in donated food that must be disposed before it can even be used.
- Difficulty in coordinating efficient and expedient pick-up or delivery of donations

# Issues: Grocery Stores

- Grocery stores generate food waste due to
  - cosmetic imperfections
  - expiration dates
  - damaged items
  - food returns.
- Challenges to preventing food waste are customer expectations of food quality, and misconceptions about sell-by/use-by dates.



# Issues: Restaurants

- Restaurants and institutions generate food waste
  - Food trimmings, planned overproduction, spoilage, and food served to customers that they do not eat.
- Challenges include
  - employee turnover and the need for regular training,
  - competing priorities for employee time and attention
  - unpredictability of consumer purchases.



# What's the hold up?

- Changing personal behaviors is challenging.
- Changing the behaviors of a multi-faceted system that is resistant to change is even more difficult.
- Solutions must be a win-win for all parties involved – and they can be!



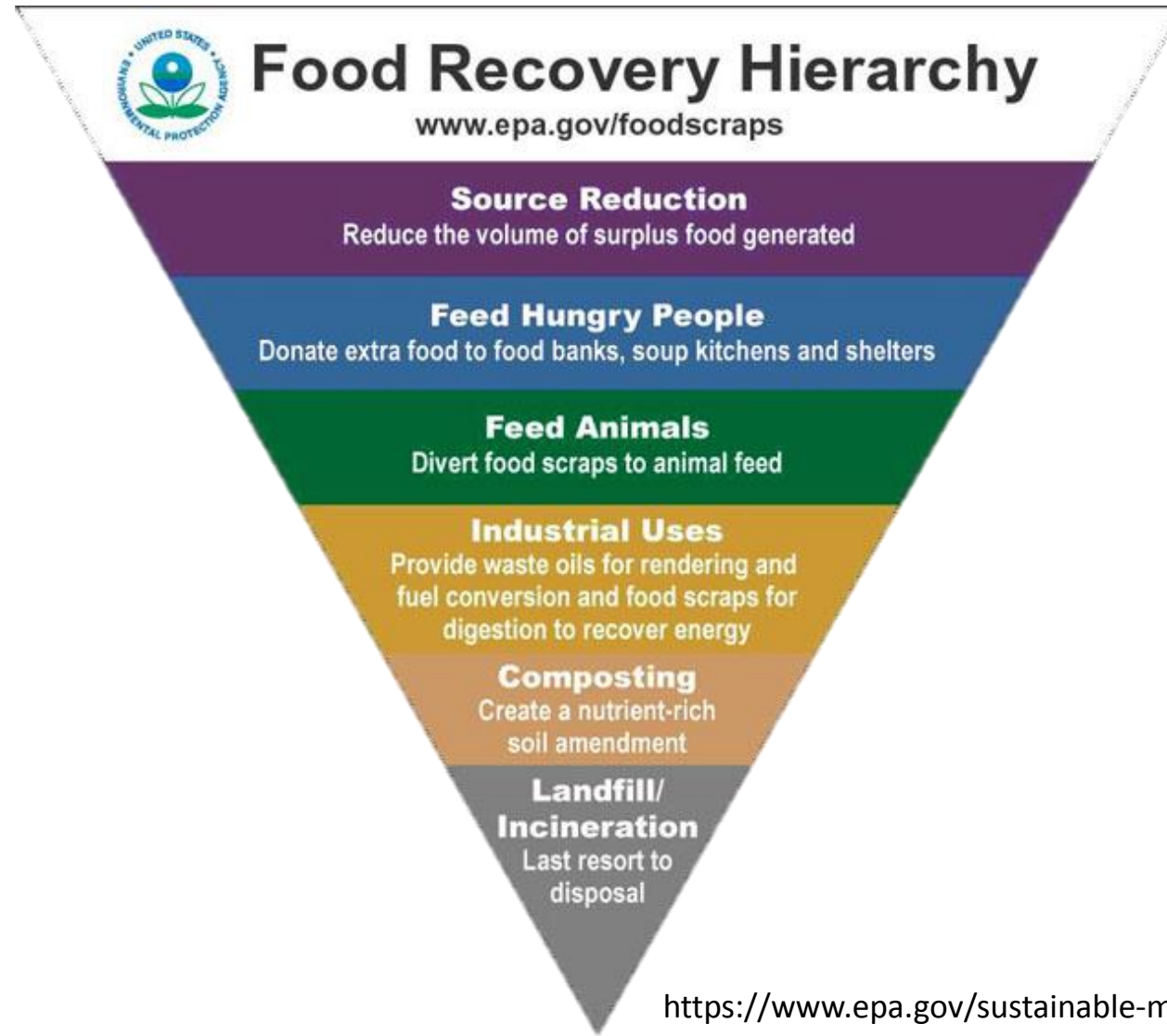




# How do we make a difference?

Strategies for reducing wasted food

# EPA Food Recovery Hierarchy







# CONSUMER STRATEGIES



# Consumers: At Home Strategies

- 1) Shop the fridge first, and make a list
- 2) Eat leftovers
- 3) Study your trash
  - [EPA food waste audit tool](#)
- 4) Encourage the use of smaller dishes (portion control)
- 5) Create your own compost pile (if possible)
- 6) Fridge 101 – organize, properly cool, and utilize FIFO
  - Download the A-Z Food Storage Guide from [makedirtnotwaste.org](http://makedirtnotwaste.org)
  - Check out [the Produce for Better Health Fruit and Veggie Storing Guide](#)



# Consumers: Retail Strategies



## **At the store**

- 1) Shop at stores that offer misshapen fruits and veggies at a discount
- 2) Shop more frequently and shop smaller
- 3) Buy only what you need
- 4) Shop for canned or frozen fruits or veggies – last longer and reduce food waste <sup>1</sup>

## **Restaurants**

- 1) Skip the tray to waste/eat less
- 2) Take home leftovers
- 3) Share dishes
- 4) Ask waiter to hold excess bread/chips
- 5) Encourage restaurants to donate excess food

# Consumers: Decoding the Date

## Standardizing food date labels

- Confusing date label system across the U.S.
- Over 90% of consumers throw out food too early, leading to massive food waste<sup>1</sup>

## Solutions

- Consumer education on what sell by, use by, best, by actually mean
  - <http://www.stilltasty.com/>
- Some manufacturers have experimented with adding “freeze by” language onto packaging to encourage customers to take active steps to preserve food in the freezer instead of throwing it in the trash





# Raising Awareness

Trashing one egg wastes  
53 gallons of water.

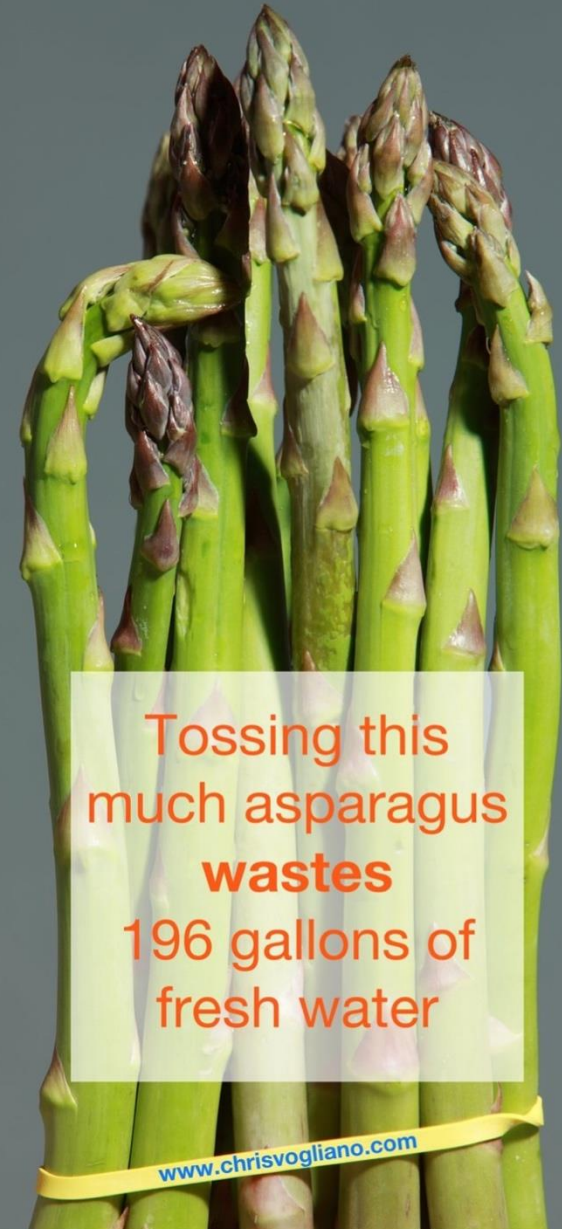
That's enough to fill an entire bathtub.



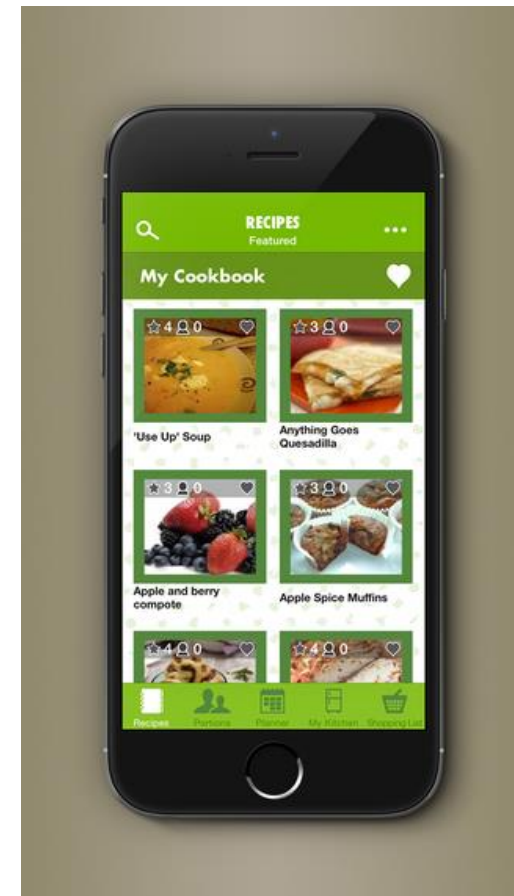
[www.chrisvogliano.com](http://www.chrisvogliano.com)

Tossing this  
much asparagus  
**wastes**  
196 gallons of  
fresh water

[www.chrisvogliano.com](http://www.chrisvogliano.com)



# Phone Apps





A photograph of a grocery store aisle filled with rows of ripe yellow bananas. The bananas are arranged in neat, overlapping bunches on a dark surface. In the background, a person is blurred, walking through the aisle. The text "RETAIL STRATEGIES" is overlaid in white, bold, sans-serif font in the bottom right corner.

# RETAIL STRATEGIES



# Retail: Food Service

## School Food Service

- 1) Expand choices to accommodate preferences
- 2) Allow more time to eat
- 3) Go trayless
- 4) Pre-slice produce to encourage consumption

## Restaurants

- 1) Encourage smaller portions
- 2) Pre-slice produce to encourage consumption
- 3) Study your trash



# Retail: Donating excess food

- Donate nutritious, safe and untouched food to your local food pantry, food bank or food rescue program
  - [Can write off food on taxes – more info here](#)
- The Good Samaritan Act protects against any lawsuits if food is donated in good faith
- Use apps to connect excess food to those who need it
  - Food Cowboy
  - Feeding Forward
  - Chow Bank



# Retail: Assessing Food Waste

- Reducing Wasted Food & Packaging: A Guide for Food Service and Restaurants
  - [https://www.epa.gov/sites/production/files/2015-09/documents/toolkt\\_training.pdf](https://www.epa.gov/sites/production/files/2015-09/documents/toolkt_training.pdf)
- Food Waste Management Cost Calculator
  - <https://www.epa.gov/sites/production/files/2015-08/foodcost3.xls>
- EPA Training Webinars
  - <https://www.epa.gov/sustainable-management-food/webinars-covering-sustainable-management-food-topics>
- LeanPath™ - Reducing Food Waste with Technology
  - <http://www.leanpath.com/>
- Academy's Food Waste Audit Tool for Food Service
  - Coming soon!





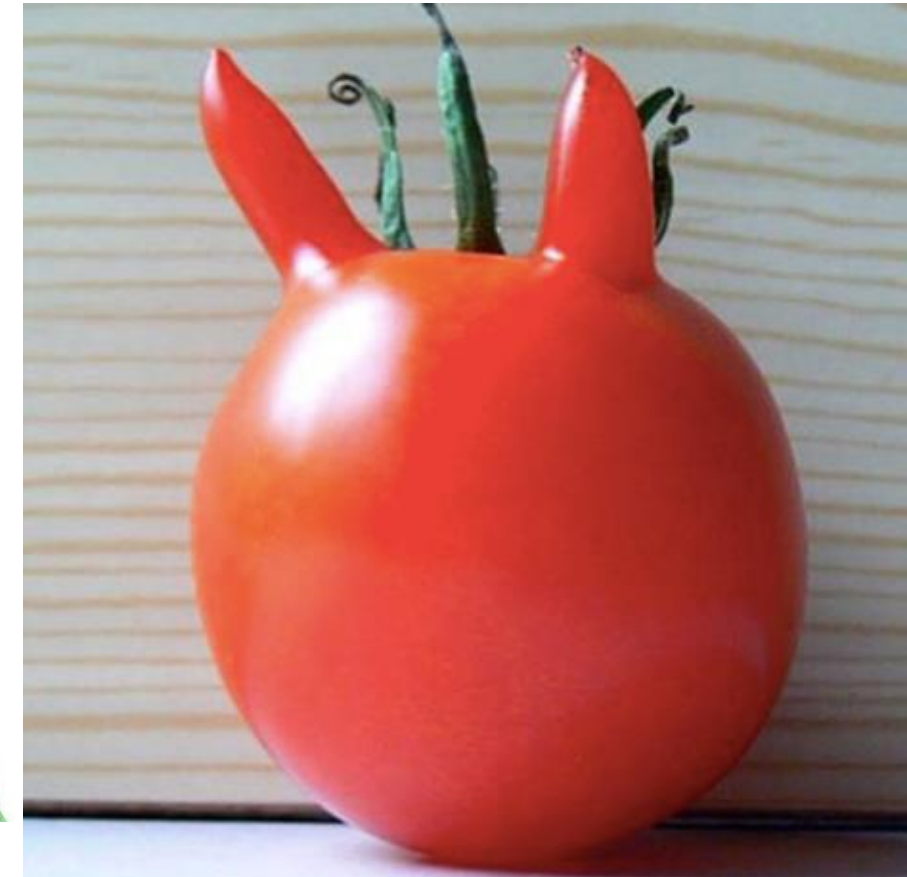
# Ugly Fruits & Vegetables



Globally 43 % of fruits and vegetables never make it from farm to fork.



# Ugly Produce needs love, too!





# Steps for Food Waste Prevention

*Adapted from University of Washington's [Food Waste Recovery Report](#)*

# Step 1 – Use a systems approach

- Use EPA's Food Recovery Hierarchy as a framework to prioritize food diversion efforts
- Develop a Food Waste and Recovery Roundtable
- Explore opportunities to leverage funding across agencies or programs to expand food waste diversion efforts
- Collaborate regionally and nationally with traditional and non-traditional partners





# Step 2 - Measure to create meaning

- Develop and implement standard food waste metrics
- Use data gathered to continue raising awareness and to develop a campaign



# Step 3 - Avoid waste in the first place

- Make food waste apparent
  - Provide support to businesses in conducting food waste audits.
  - Make the case for food waste from the consumer level to the food service industry
- Integrate food waste prevention best practices into culinary and food service training
  - Highlight successes (case studies, publicity, forums, model prevention policies)
  - Build awareness in youth and by extension, greater awareness with parents/adults

# Step 4 - Support the food donation / recovery system

- Increase infrastructure and capacity of the emergency food system
  - Explore ways for food banks to acquire infrastructure that helps move and store perishable food
- Increase donations of nutritious foods to the emergency food system
  - Strengthen farm-to-food bank connections
  - Explore how to increase processing of perishable foods to be used by emergency food system



# How Policy is Driving Change



# Bill Emerson – The Good Samaritan Act

1. Protects businesses and consumers from liability when they donate to a non-profit organization
2. Protects businesses and consumers from civil and criminal liability should the product donated in good faith later cause harm to the recipient environmental



# The Good Samaritan Act Cont.

- Many businesses are still unaware of this law, and do not donate out of fear of liability
- Every state has its own version of liability protections for food donors and food recovery organizations. States can improve these statutes by clarifying and expanding protection for food donations beyond what is offered in the federal Emerson Act.



# Policy Reform: Social Supermarkets

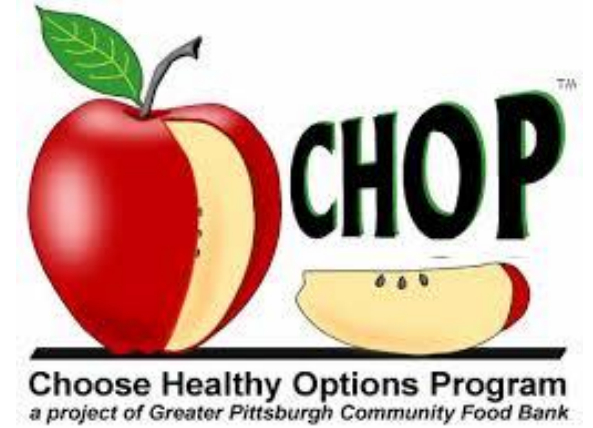
- The Daily Table (Dorchester, MA)
  - Founded by former president of Trader Joe's, Doug Rauch, Daily Table is “a not-for-profit retail store.
  - Organizations like Daily Table are following the model of “social supermarkets,” popularized in Europe, that have been successful at serving communities by selling surplus foods in a low-cost grocery setting.





- Kroger reduces the amount of food waste in its grocery stores through its Perishable Donations Partnership (PDP) program.
- In 2015, Kroger donated 56 million pounds of fresh food to local food banks. Working in tandem with its internal food safety experts, Kroger continuously looks for opportunities to add new categories of fresh product that can be donated safely through the program.

# CHOP



- **What Is CHOP™?**

- The Choose Healthy Options Program (CHOP™) is a comprehensive program to promote the acquisition, distribution and consumption of healthy food through food banks.
- CHOP™ can be used to develop nutrition policy, set food procurement goals, and measure progress to those goals.
- It can be used to transition donors and vendors from supplying nutritionally poor food to a healthier choice while maintaining costs.

<http://www.cloudnutrition.net/what-is-chop/>



# How states & cities can play a major role

- Food systems are vastly different depending on region, state, etc.
- Some cities and states have taken major strides in reducing their food-waste footprint.
  - Ex: Seattle, San Francisco and others have created a mandatory city-wide composting service that is picked up weekly.



# USDA Revises Date Labeling to Reduce Food Waste – Dec 14, 2016



- USDA is now encouraging food manufacturers and retailers to use the phrase “Best if Used By”.
- “In an effort to reduce food loss and waste, these changes will give consumers clear and consistent information when it comes to date labeling on the food they buy,” said Al Almanza, USDA Deputy Under Secretary for Food Safety. “This new guidance can help consumers save money and curb the amount of wholesome food going in the trash.”

# EPA and USDA Set Nations First Goals to Reduce Wasted Food

- September 16, 2015, EPA and USDA announced the United States' first-ever national food loss and waste goal, calling for a 50-percent reduction by 2030.
- USDA and EPA will work in partnership with charitable organizations, faith organizations, the private sector, and local, state and tribal governments to reduce food loss and waste in order to improve overall food security and conserve our nation's natural resources.



<https://www.usda.gov/oce/foodwaste/faqs.htm>



# Food and Nutrition Conference and Expo (FNCE)

- **Partnered with The Greater Boston Food Bank**
  - 12,000 attendees

## Total Food Rescued

- Dry Foods: 7,074 lbs
- Dairy Products: 4,648 lbs
- Produce: 2,059 lbs
- Frozen Foods: 1,150 lb
- **Total: 14,933 lbs**



# Planning a conference? Here are 3 tips for reducing wasted food at conferences:

1. **Order less food.** I have never been to a conference where they have run out of food, and I guarantee it rarely happens. While it's always hard to estimate attendance and/or appetite of attendees, it may help both your bottom line and the environment to experiment with ordering less food.
2. **Be Proactive:** Understand that wasted food *will* inevitably happen, and reach out to your local food bank or food pantry ahead of time. Being proactive will help the food bank prepare for the upcoming donation. Go to [www.feedingamerica.org](http://www.feedingamerica.org) to find out which agency is closest to your event.
3. **Encourage attendees to take food home:** We have all been there. Stuffed for lunch, but know dinner is just around the corner. Encourage attendees and staff to take food home or back to their hotel rooms. This only works for shelf-stable food, or hotels that have mini-refrigerators installed - (food) safety first!

# Global Solutions to Reducing Wasted Food

## Europe

Started selling “Ugly Produce” at the super markets.

## France

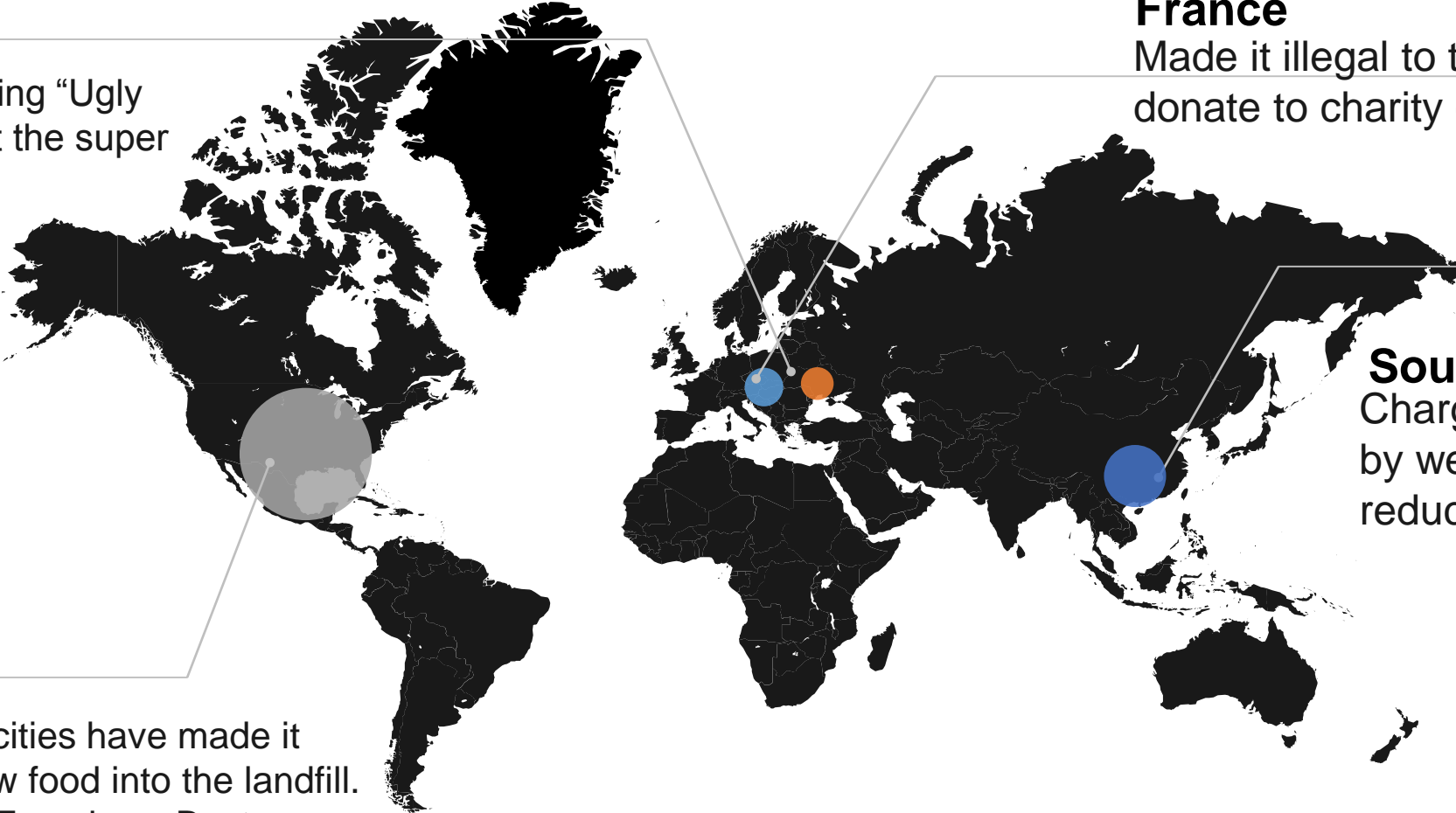
Made it illegal to throw away food. Must donate to charity or at minimum compost it.

## South Korea

Charges for garbage removal by weight in hopes of reducing food waste

## America

Some major cities have made it illegal to throw food into the landfill. Seattle, San Francisco, Boston, and some states require composting







What's happening in Kansas?



# Kansas Food Donation Laws

## State Liability Protection Laws

State	Citation	Type of Protection		Protections Apply When End Recipient Pays for the Donated Food	Protections Apply to Direct Donations
		Civil	Criminal		
Idaho	Idaho Code Ann. § 6-1301–1302	x	x		
Illinois	745 Ill. Comp. Stat. 50/1–50/4	x			
Indiana	Ind. Code § 34-30-5-1–34-30-5-2	x			
Iowa	Iowa Code Ann. § 672.1	x	x	x	
Kansas	Kan. Stat. Ann. § 65-687	x	x		
Kentucky	Ky. Rev. Stat. § 413.247–248	x	x		
Louisiana	La. Rev. Stat. Ann. § 9:2799	x			Only wild game



# Kansas Food Bank

- In Fiscal Year 2013, the Food Bank distributed
  - 1,814,698 pounds of fresh produce to families.
  - had 75 mobile pantries providing healthy food to 36 different communities. 5,535 families were served — that's a total of 16,658 people receiving 211,069 meals
- Food 4 Kids served 7,158 students at 400 schools.
  - Feedback from counselors, teachers, principals and school nurses reassures us that the program is a reliable source for filling weekend hunger gaps.

# Bods Feeding Bods

- Bods Feeding Bods is an advisory board made up of Washburn University students, faculty and staff who are committed to the alleviation of hunger. Established in August 2014, Bods Feeding Bods supports several initiatives at various stages of development on the Washburn campus right now.
- Seeking to establish a Campus Kitchens Project





# Blue Valley Schools – Food Recovery Program

- The school staff puts the leftovers in the freezer, and Harvesters Food Bank picks it up twice a week. They deliver the food to food kitchens, homeless shelters, and domestic violence shelters. In one night, the leftovers will feed 75-100 people.
  - "We're hoping this sets an example to other parts of the country," - Charles Rathbun, Director of food and nutrition services.
- It is some extra work for the staff to package up all the leftovers, but they don't mind, knowing that it's helped tens of thousands of people.
  - <https://www.youtube.com/watch?v=6oTgWhoYAK4>



# Wichita Public Schools



**Wichita Public Schools**

October 12, 2016 · 🌐

Students at Pleasant Valley Elementary are helping the environment and going green with their composting and recycling program. They compost the waste from their lunches and learn about how the composting process works in science class!



# Kansas Landfills



It's Jack Chappelle's business, at Engineering Solutions & Design of Kansas City, Kan., to sort through garbage to inform cities and states what goes into their landfills. He says a lot of what he finds is food. **Pat Aylward** NET News

# Campus Kitchens Project



Robert Egger

“Neither food nor people  
should ever go to waste”



THE  
CAMPUS  
KITCHENS  
PROJECT<sup>SM</sup>





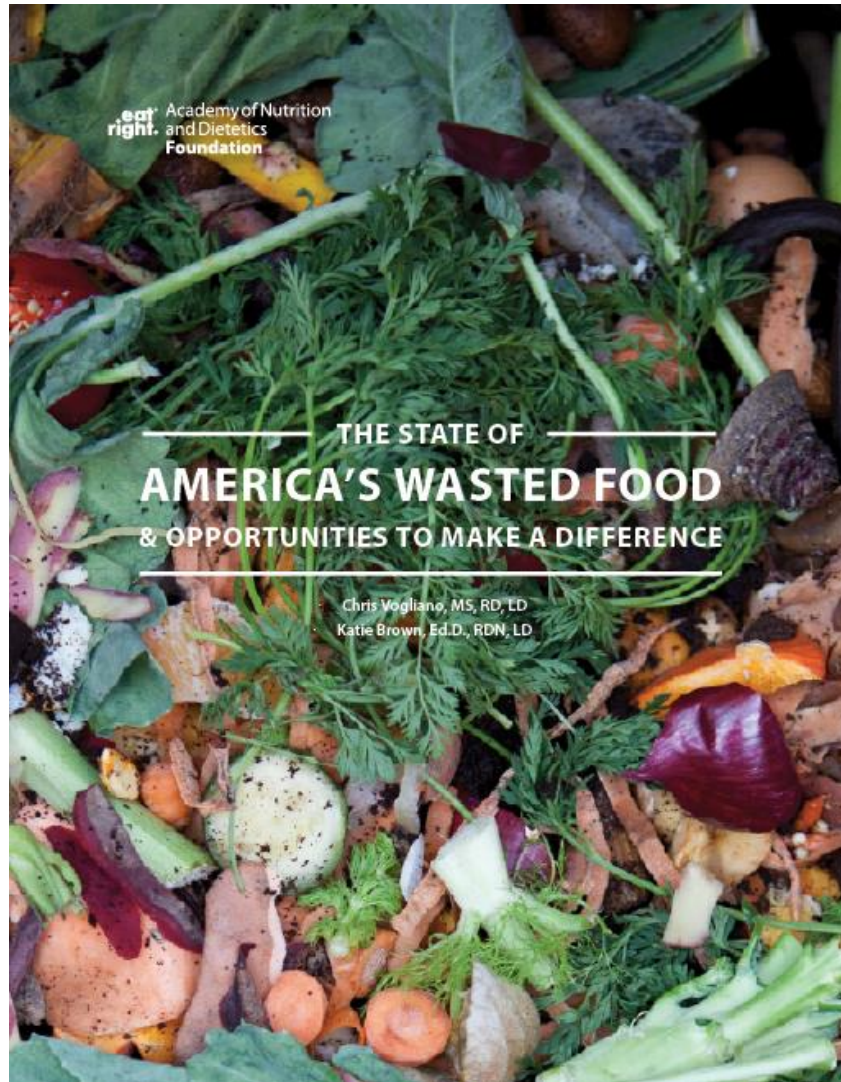


“ Once our grandparents were very careful not to throw away any leftover food. Consumerism has led us to become used to an excess and daily waste of food..

Throwing away food is like stealing from the table of the poor and the hungry. ”

Pope Francis

# Food Waste White Paper



Huge thanks to the Academy of Nutrition and Dietetics Foundation for making this possible!

[Link Here](#)

Or you can find it on my website  
[www.chrisvogliano.com](http://www.chrisvogliano.com) under “My Projects”

# Resources

- City of Seattle Food Waste Report - <https://depts.washington.edu/uwcphn/reports/SeattleFoodWasteReport.PDF>
- Bruening M, et al. [Academy of Nutrition and Dietetics: Standards of practice and standards of professional performance for registered dietitian nutritionists \(competent, proficient, and expert\) in public health and nutrition](#). *J Acad Nutr Diet*, 2015;115(10):1699-1709.
- Cuéllar A, Webber M. [Wasted food, wasted energy: The embedded energy in food waste in the United States](#). *Environmental Science & Technology*. 2010;44(16):6464-6469.
- Hall K, Guo J, Dore, Chow C. [The progressive increase of food waste in America and its environmental impact](#). *PloS ONE*, 2009;4(11): e7940.
- Parfitt J, Barthel M, Macnaughton S. [Food waste within food supply chains: Quantification and potential for change to 2050](#). *Philosophical Transactions of the Royal Society of London B*, 2010;365:3065-3081.
- Tagtow A, Nguyen J, Johnson-Bailey D, Schap T. [Food waste reduction efforts at the USDA](#). *J Acad Nutr Diet*, 2015;115(12):1914-1918.

# Toolkits

- Academy Foundation Future of Food Initiative. Tossed Treasures. How We All Can Waste Less Food. This toolkit was developed by RDN farmer content experts.
  - Available in English and Spanish at [www.kidseatright.org/volunteer](http://www.kidseatright.org/volunteer).
- Environmental Protection Agency. Food Recovery Challenge
  - <http://www.epa.gov/sustainable-management-food/food-too-good-waste-implementation-guide-and-toolkit>
- Food Waste Reduction Alliance (FWRA). Best Practices and Emerging Solutions Toolkit.
  - <http://www.foodwastealliance.org/full-width/fwra-publishes-toolkit-reducing-food-waste/>





BLOGGING COOKING MY PROJECTS RESOURCES ABOUT ME

## FOOD WASTE RESOURCES

### JOURNAL ARTICLES

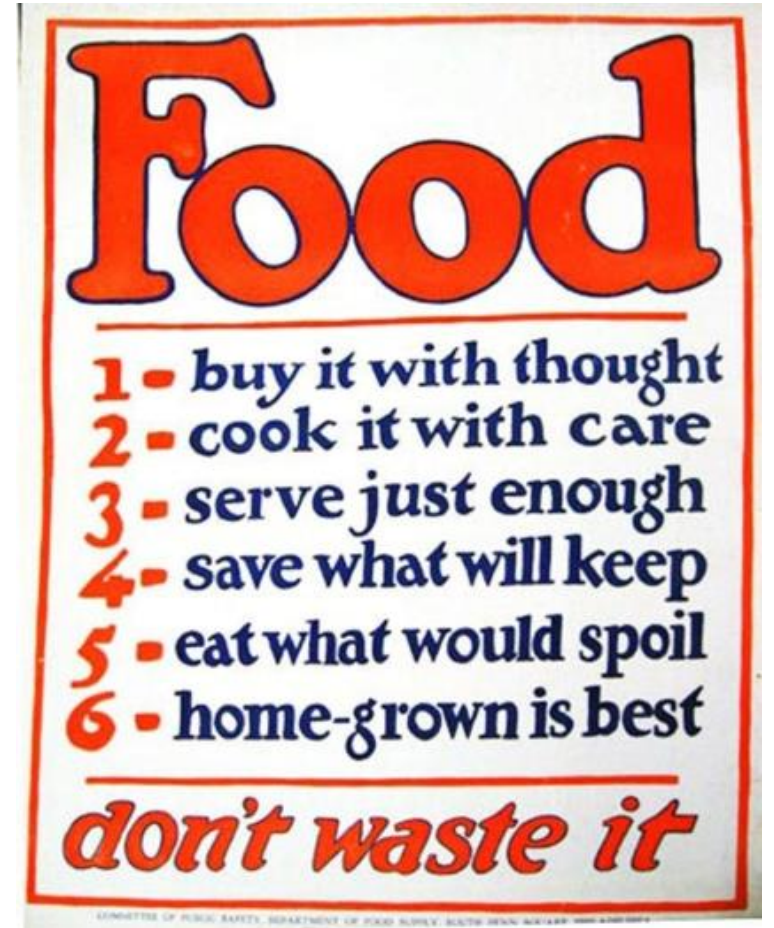
- Bruening M, et al. Academy of Nutrition and Dietetics: Standards of practice and standards of professional performance for registered dietitian nutritionists (competent, proficient, and expert) in public health and nutrition. *J Acad Nutr Diet*, 2015; 115(10):1699-1709.

[www.chrisvogliano.com](http://www.chrisvogliano.com)

# Summary

Wasting food can save us all money, reduce our environmental impact and pressure on the planet, and help divert food to feed hungry Americans rather than landfills.

Small changes make a large difference!



WW1 Graphic